Assessment of PTSD Symptoms Resulting from a Motor Vehicle Crash in College Students

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INTRODUCTION

Motor Vehicle Crashes (MVCs)

- Increased interest in understanding the clinical manifestations of MVCs in adult populations.
- Common psychological morbidity (e.g., Blaszczynski et al., 1998; Ellis, Stores, Mayou, 1998; Hobbs & Mayou, 2005).
- Acute responses (e.g., acute stress disorder), depression and anxiety, driving phobia, post-traumatic stress disorder (PTSD), and other psychological consequences.
- Typical MVC PTSD assessment relies almost exclusively on indirect methods (e.g., Blanchard et al., 2004; Blanchard et al., 1996; Bryant & Harvey, 2003b; Buckley et al., 2004; Buckley, Blanchard, & Hickling, 1996; Chan et al., 2003; Fullerton et al., 2000; Ursano et al., 1999).
- Indirect methods include interview, self-report, & rating by others.
- Direct methods include naturalistic and analog observations of behavior, self-observations made contemporaneous with an ongoing event, etc.

College Students Following a MVC

- Predominant clinical and/or community samples (e.g., Blanchard, Hickling, Galuski, et al., 2002; Buckley et al., 2004; Devine et al., 2004).
- None of studies examine the after-effects of the MVC in college students (Harvey & Bryant, 2001; Hickling, Taylor, & Blanchard, 1999; Hingson, Heeren, & Zakocs, 2002).

PURPOSE OF THE STUDY

- Purpose (a): Investigation of the characteristics of college students who have been involved in an MVC versus a control group.
- Purpose (b): Development of an analog role play assessment [i.e., MVC-Behavioral Avoidance Test-Adult Version (MVC-BAT-A)] to assist in evaluating MVC-related PTSD symptoms in adults.
- MVC-BAT-A: Assesses avoidance behavior, arousal level, and reaction time (RT).
- Component 1: Instruction, practice stories, & mental arithmetic task.
- Component 2 of MVC-BAT-A: Six MVC-and non-MVC-related stories (4 segments for each story).

HYPOTHESES

- Hypothesis (a): Group with High MVC-related PTSD symptoms will experience higher levels of psychological distress during their exposure to the MVC-related stories.
- Hypothesis (b): Group with High MVC-related PTSD symptoms will take more time to complete their SUDS ratings during their exposure to the MVC-related stories.
- Hypothesis (c): Group with High MVC-related PTSD symptoms will engage in more avoidance behavior to MVC-related stories.

METHOD

Participants

- Inclusion criteria:
  - Previous MVC and High MVC-related PTSD symptoms
  - Students enrolled in an introductory psychology course
  - Control group: 40 non-MVC adults
- Exclusion criteria:
  - Loss of consciousness during a MVC (> 15 minutes), age > 24, and/or lack of interest in participating in the second phase of the study.
- Forty adults with High MVC PTSD
  - Age: 18-24 yrs (M = 19.5, SD = 1.3), Males = 57.5%.
  - Country of origin: U.S. citizens = 97.5%.
  - Ethnicity: Caucasians = 95%; African American = 2.5%.
  - Year of college: Freshmen = 60%; Juniors = 20%; Sophomores = 12.5%; Seniors = 7.5%.
- Control group: 40 non-MVC adults
  - Age: 18-24 yrs (M = 19.7, SD = 1.4).
  - Gender: Males = 62.5%.
  - Country of origin: U.S. citizens = 92.5%.
  - Ethnicity: Caucasians = 85%; African American = 5%.
  - Year of College: Freshmen = 45%; Sophomores = 30%; Juniors = 17.5%; Seniors = 7.5%.
- Driver’s license: 65%; Passengers = 35%.
- Being injured in the accident = 16 (40%).
- Severity for each type of the injuries: 12 of the 16 injured participants reported having experienced “not at all severe” and “a little bit severe”.
- Medical treatments: First aid at scene = 17.5%; first aid at home = 10%; visiting emergency room = 17.5%; visiting doctor’s office = 10%; hospitalization = 2.5%.
- Damage of participants’ vehicles: Mainly damaged but repairable = 20%; Not repairable/totaled = 60%.
- Perception of the MVC: In danger of being injured = 82.5%; In danger of being killed = 62.5%.
- Presence of others during the accident: Having others present at the time of accident = 72.5%; Experiencing friends killed in the accident = 5%.
- Taking medications = 42.5%.
- Current medical problems not resulting from the MVC = 15%.

METHOD (continued)

- Descriptors of MVC
  - Psychological problems or disorders = 27.5%.
  - Had ever received counseling or psychological services = 27.5%.
  - The MVC(s) required him or her to receive psychiatric or psychological services = 0%.
  - Had received the services prior to the accident = 17.5%.
  - Had not received compensations = 70%.
  - Had not had a major financial crisis = 85%.
  - Had not been involved in a legal suit/legislation = 80%.

RESULTS

- Characteristics of College Students (Purpose a)
  - Significant differences were found between the two groups on the eight dependent variables, Wilk’s λ = 0.69, F (8, 71) = 3.91, p < 0.01, n² = 0.31.
  - Follow-up tests (ANOVA) showed a significant group effect for the most traumatizing non-MVC event, F(1, 78) = 8.43, p < 0.01, n² = 0.10.
  - ADIS-IV-A-PTSD total frequency score for the most traumatizing non-MVC event, F(1, 78) = 8.56, p < 0.01, n² = 0.10.
  - ADIS-IV-A-PTSD total distress score resulting from previous traumatic events that participants endorsed, F(1, 78) = 24.93, p < 0.01, n² = 0.24.

- Evaluation of psychometric properties of the MVC-BAT-A (Purposes b & c; discriminant validity)
  - SUDS nervous & happy scores: Significant differences between two groups on the five dependent variables, Wilk’s λ = 0.86, F (5, 74) = 2.44, p < 0.05, n² = 0.14 and Wilk’s λ = 0.86, F (5, 74) = 2.39, p < 0.05, n² = 0.14.
  - Follow-up tests (ANOVA) for each dependent variable

DISCUSSION

- Group differences in characteristics of college students
  - High MVC PTSD symptoms > control group
- General anxiety, frequency and distress of non-MVC PTSD symptoms, distress reported from and experience of previous traumatic events.
- Comparison of the Adjusted Mean SUDS nervous/happy scores by group
- Order of studies, carryover effects, a fatigue or desensitization effect, idiodynamic and symptom demands of MVC-related stimuli.
- Comparison of RT by group: No group differences
- Dissimilarities in participants’ development maturity.
- Format of trauma and non-trauma related stimuli.
- Comparison of avoidance behavior by group
- Discrepancy between the SUDS ratings and avoidance behavior to fear stimuli.
- Convergent validity
- Reactivity of assessment & functional differences between indirect and direct methods.
- Concurrent validity
- Should pay attention to the MVC survivors
- High number of multiple traumas & frequently experiencing PTSD symptoms resulting from their most traumatizing non-MVC event.
- Importance of assessing both positive and negative affect during their exposure to trauma-related cues.
- Future directions: Idiosyncratic vs. standardized stimulus, various techniques and imaginal exposure, & physiological responses.

SELECTED REFERENCES